DOCUMENT RESUME

ED 343 742 RC 018 563

TITLE A Parent's Handbook. 1990 Edition.
INSTITUTION American Indian Science and Engineering Society, Boulder, CO.
PUB DATE 90
NOTE 12p.
PUB TYPE Guides - Non-Classroom Use (055)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *American Indian Education; *College Preparation; Elementary Secondary Education; *Mathematics Education; *Parent Influence; *Parent Participation; Parent Student Relationship; *Science Education
IDENTIFIERS *American Indian Science and Engineering Society

ABSTRACT

This handbook offers American Indian parents some suggestions on ways to promote their children's educational success, particularly in the areas of science and mathematics. Strong math skills are critical to participation in science, engineering, and technology related occupations. American Indian participation in such occupations promotes Indian control and management of the natural resources on and beneath Indian land. A strong math background also enables American Indian students to find occupational opportunities in administration, marketing, and financial career areas. Parents are the most important factor in a child's educational success. Parents' participation in the schools significantly influences their child's attendance, attitudes, and confidence. It also influences school policies that affect the success of all children. An American Indian child's classroom success is related to the child's knowledge of and commitment to Indian identity. Because of a frequent shortage of school counseling services, parents must be prepared to help their children plan their educational futures. The most academically successful American Indian students attend schools that feature courses with interesting content, academic challenge, peer interaction, and curricular flexibility. The American Indian Science and Engineering Society seeks to increase the number of American Indian scientists and engineers. The society sponsors math and science summer camps for students in Grades 7-9 and a comprehensive university-based enrichment program to prepare students in Grades 8-11 for entrance into math and science college majors. (SV)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED343742

A Parent's Handbook

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Cynthia J. Salazar

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

American Indian Science and Engineering Society
1630 30th St., Suite 301
Boulder, Colorado 80301

1990 Edition

PC 018563

BEST COPY AVAILABLE

TABLE OF CONTENTS

Our Role in Education 1

Importance of Math for Our Students 2

Helping Students Plan 3

Our Children As Learners 4

Offering Support At Home 5

Extra Activities 6

American Indian Science and Engineering Society . . . 7

AISES Summer Camps 8

Comprehensive Enrichment Program 9

OUR ROLE IN EDUCATION

Although it is commonly believed that schools are the primary influence on a child's educational success, recent studies have shown that the majority of what a child learns comes from the home. For example, attitudes toward formal education and subjects such as math and science are communicated by parents, directly and indirectly. A child's attitude toward learning influences academic success as much as, if not more than, a child's perceived ability level. Nonetheless, a child's attitude toward school is also dependent on the school being a comfortable and exciting place for him/her to learn. It is important for parents to work with the schools in order to make them better able to meet our children's needs and interests. Please consider the following:

Parents are the most important factor in a student's success in school. (More than teachers, curriculum, or the atmosphere of the school.)

Parents who participate in the schools have a significant influence on their child's attendance, attitude, and confidence.

Parents who participate in the schools have increased opportunities to have input into policies which influence the success of all children.

Success in classroom learning activities, including math and science, requires a child's pride in, knowledge of, and commitment to his/her Indian identity.

Parents who unite with other parents to represent their children's needs are more likely to have their voices heard in a strong, imaginative and effective way.

IMPORTANCE OF MATH FOR OUR STUDENTS

Math is the gatekeeper to science, engineering and technology. Students cannot choose to participate in science, engineering and technology-related careers without developing strong math skills. Further, American Indian people are not only participating, but are often leading the way in the areas of science, engineering and technology. This is especially exciting with respect to American Indian people who are creating ways to control and manage, without outside interference, the one-third (!) of the nation's energy resources which lie beneath Indian land.

The ultimate goal of any worthwhile educational program is for participants to create opportunities to take control of their own lives. A strong math background enables students to create opportunities, not only in the science-related careers but also in: bank management, financial planning, public administration, marketing research, manufacturing, etc. In this complex world, American Indians with strong math skills are in a position to make the future work for themselves and for our people.

HELPING STUDENTS PLAN

In some schools, there is one school counselor for every 300 students! Therefore, although all students should be encouraged to take math and science each year in school, this may not happen. Further, when students do enroll in math and science classes, they may be enrolled in less advanced classes designed for students who are not planning on attending college. Perhaps a student will need a summer math camp or a tutor to become stronger in math, but she/he should expect that a solid background in math is essential to creating future opportunities. Following are some considerations:

* Standardized test scores and teacher made tests do not accurately assess a student's potential.

* Decisions regarding what math and science classes to take should relate to criteria about:

  1.) future goals
  2.) which teachers best accommodate a range of abilities in their classrooms,
  3.) which teachers have high expectations for all students.

* With respect to future goals, college-bound students typically take Algebra by 9th grade, Geometry by 10th grade, then Trigonometry, Calculus or Statistics.

* Consumer Math or Business Math are not advanced math courses.

* Science classes which best prepare students for college are Biology, Chemistry, and Physics.

* Getting good grades is not necessarily the most important criteria for getting into college. College admissions take into account the difficulty level of courses taken. Advanced courses in math and science are not only a necessary preparation for college, they also show that a student has made an effort. A "B" or "C" in a hard course is better than an "A" in an easy course.

OUR CHILDREN AS LEARNERS

Although American Indian students score high on math, science and other tests in elementary school, by 4th grade they begin to lag behind. As a result, Indian children complete fewer math courses than other minority students. Educational researchers feel that there are many reasons for this. Their findings also suggest:

The content that is presented to students may not be motivational. Mathematics and science instruction must be built around content that reveals the dynamic nature of mathematics and science. Instruction must involve more than memorizing facts, formulas and textbook problems. Students need open-ended questions that apply to their unique backgrounds and everyday lives.

Students who are especially talented in math and/or science are often simply moved ahead at a quicker pace through a course of study. Children who are able to grasp new material quickly need to be challenged with enrichment of content. Expanded and deeper instructional content challenges our more self-sufficient students to utilize fully their capabilities.

Students may not have opportunities to form friendships while learning. Successful students need to develop friendships around academic challenges. When students develop academic interests together and are taught ways to encourage each other to acquire new skills, learning becomes a way of life. In other words, learning is not something that happens only because it is required in school. School curriculums should be built around helping students create a community of academically successful peers.

The unique ways Indian students may have of viewing the world are not often considered in curriculum development. American Indian students may have a view of the world that is very different from the dominant white culture. With respect to school curriculum, math and science-related technical fields are sometimes perceived as manipulating or controlling nature and American Indian resources. Math and science need to be taught and used in ways that are sensitive to the traditions and values of American Indian students. For example, math can and needs be applied to protect Indian land and resources. (Students need to know that this is happening more frequently as American Indians develop math and science skills and enter the fields of geology, energy development and environmental engineering.)

Interesting content, academic challenge, peer interaction and curricular flexibility are characteristics of schools that have academically successful students. We must look at what our schools offer to our children if we are to help our children become life-long learners.

OFFERING SUPPORT AT HOME

Most of us don't remember a heck of a lot of math. Nonetheless, we can still help our children get their work done well. Here are some common tips:

1. Agree with your child on a time for homework each day and cooperatively select a quiet place for your child to study. (away from television, radio, telephone, or younger brothers and sisters)

2. Expect your child to share his or her completed homework with you each day, and any tests or projects that have been graded.

3. Offer to read questions from the textbook for your child to answer. (You don't need to know the answers yourself. They usually do.)

IN ADDITION . . .

4. Each day ask your child what she/he learned in math or science class. Expect a specific answer and wait for it.

5. Once a week, check to see if your child is having trouble with the math or science classes. If there is a problem, you might brainstorm possible solutions with your child. Tutors and special help from teachers or peers are possibilities. You might also check with your child's school to see if they have a "homework hotline" which some schools have set up to help students with their math and science. Often, there are special programs or sources of funding available through the schools. Your child has a right and a need to excel!

6. Math is more than numbers. Math, as done by mathematicians, involves intuition, inspiration, and creative thought. It does not have to include the drudgery of memorizing or computing numbers. Hand-held calculators can help students with the numbers and bring the creative side of math forward. The purpose of learning math for a career in science, engineering, or technology is really the application of principles. Using a calculator allows students to get a feel for numbers without losing their interest in how numbers figure into the principles of math.

EXTRA ACTIVITIES

Following, are some interesting ways to reinforce your child's math and science orientation. They may further enable your child to see himself/herself as a learner and to dream a bit about life-long learning.

* Visit a college or university together. (Just for fun)

* Explore a nearby library.

* Tour a factory or industry.

* Enjoy a science museum together.

* Ask someone with a computer to teach you and your child something fun and useful that it does.

* Treat your child to math games and puzzles every once in a while.

* Help your child save enough money to buy a calculator.

* Have good books in the home on math and science. (Have your child surprise you with books to look at from the school library!)

* Subscribe to a science magazine.

* Get the whole family to "invent" something small together.

* At mealtime, share views on an interesting science-related issue that you heard about or read about in the news.

* If you watch television, there are a few science programs that can be interesting. These include: Square One, 3-2-1 Contact, Newton's Apple, Nova, Living Planet, and National Geographic.

* Discover role models in the community who work in science-related fields. Can you visit them at work?

AMERICAN INDIAN SCIENCE AND ENGINEERING SOCIETY

The American Indian Science and Engineering Society (AISES) is a private, nonprofit organization whose mission is to increase the number of American Indian scientists and engineers in the nation and to develop technologically informed leaders within the Indian community. AISES is behind the advancement of American Indians who seek to become self-reliant and self-determined.

AISES is working with Indian students as early as the elementary grades to strengthen their educational backgrounds in math and science. AISES also prepares students for the academic and cultural pressures of life on college campuses. At the college level, AISES provides scholarships, counseling support, and leadership training to help Indian students achieve successful careers in science and engineering.

Each AISES student is asked to give back to the Indian community after graduation. Thus, AISES students become more than professionals in a technological world. They become architects of a new destiny for American Indians.

AISES SUMMER CAMPS

Summer Camp Helps Indian Students Experience Math and Science.

AISES has programs to improve math and science learning among American Indian junior high and high school students. For three weeks in the summer 7th, 8th and 9th grade Indian students are involved in unique academic opportunities. These opportunities enable our students to enroll in challenging high school math courses such as algebra, geometry, trigonometry and calculus. This enables our students to enter college, accept the challenge of college math and science courses, and pursue a technical career in science, engineering or technology if they choose to do so.

The purpose of the camps is to develop a positive attitude toward learning, and especially toward math and science. Students learn that doing well in math and science helps them succeed in college and opens up career possibilities. The camps also stress the importance of American Indian cultural values and traditions. One way we do this is by examining the social and cultural impact of technology on Indians is also studied.

Each morning begins with a class that explores basic concepts in math and science. Another class concentrates on students' ability to calculate and estimate. Each afternoon students use computers to increase their problem-solving skills. They also spend time researching a topic for presentation on the last day of camp. In addition, the three-week schedule includes: activities for parents, field trips, exposure to Indian role models, free time to talk with instructors and students, and many other growth-oriented experiences.

COMPREHENSIVE ENRICHMENT PROGRAM (CEP)

The long-term objective is to prepare high potential American Indian students, 8th through 11th graders, for entrance into math and science-based disciplines at the college level through this accumulative learning experience at universities around the nation. The program is designed to:

1. Stimulate the interest of American Indian students in mathematics and the sciences; both academically and professionally.
2. Help Indian students assess their potential skills and abilities in mathematics and the sciences;
3. Increase the students' knowledge and performance skills in mathematics and sciences;
4. Enhance the students' confidence in their abilities and opportunities in mathematics and the sciences, both in school and in the job market;
5. Acquaint students with applications of mathematics and sciences in the "real" world;
6. Prepare students for cultural challenges away from their traditional environment;
7. Encourage parents of the participating students to support the academic pursuits of their children;
8. Influence the Indian community toward higher academic expectations for their young people.

Year	Grade	Academic Emphasis
1	8th	Mathematics
2	9th	Physical Sciences
3	10th	Life Sciences
4	11th	Computer Sciences/ Engineering
5	12th	Internship